

Industry Series

1977 CENSUS OF MINERAL INDUSTRIES

MIC77-I-13A(P)

Issued November 1979

Preliminary Report

Crude Petroleum and Natural Gas SIC 1311

This report presents preliminary information for the Crude Petroleum and Natural Gas industry from the 1977 Census of Mineral Industries. The data will be superseded by a final paperbound report which, in turn, will be bound into a volume of Subject, Industry, and Area Statistics of the 1977 Census of Mineral Industries. The final report will include a comprehensive discussion of the concepts and definitions used in the census.

The total value of shipments for establishments classified in the Crude Petroleum and Natural Gas industry amounted to \$40,417 million in 1977, an increase of 158 percent over 1972. The value of shipments of products classified as being primary to the Crude Petroleum and Natural Gas industry was \$40,332 million, an increase of 157 percent from 1972. (See appendix A for a discussion of the difference between value of shipments for the industry and value of product shipments.) Value added by mining, at \$37,802 million in 1977, was 162 percent above value added in 1972. All dollar figures shown in this report are in current dollars; therefore, they are not adjusted for changes in price levels.

In 1977 the industry had 133 thousand employees, an increase of approximately 14 percent from 1972. The leading State in employment was Texas, accounting for approximately 40 percent of the industry's 1977 employment.

The Crude Petroleum and Natural Gas industry includes establishments primarily engaged in operating oil and gas field properties. Such activities include exploration for crude petroleum and natural gas; drilling, completing, and equipping wells; operation of separators, emulsion breakers, desilting equipment; and all other activities incident to making oil and gas marketable up to the point of shipment from the producing property.

Establishment data in this report were tabulated based on industry definitions contained in the 1972 Standard Industrial Classification (SIC) Manual and its 1977 Supplement.¹

Of the four tables, 1, 2, and 4 present data for establishments classified in the Crude Petroleum and Natural Gas industry, reflecting not only the primary activities of the establishments, which determine their industry classification, but also all secondary activities performed in the same establishments. This fact should be taken into consideration when comparing these data with the value of products information appearing in table 3, reflecting the products classified as being primary to this industry and made by plants classified in this and other mining industries.

The methods of data collection and use of administrative records data are discussed in detail in appendix A. Small single-unit companies with up to 10 employees (the cutoff varied by industry) were excluded from the mail portion of the census. For these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated), data on payrolls and receipts were obtained from administrative records of other government agencies. The remaining statistics were developed from industry averages. For the Crude Petroleum and Natural Gas industry, the establishments for which administrative records data were used accounted for approximately 2 percent of total value of shipments.

¹ Standard Industrial Classification Manual: 1972. For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Stock No. 4101-0066. Price \$15. 1977 Supplement. Stock No. 003-024-00176-0. Price 90 cents.



U.S. Department
of Commerce
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For sale by Subscriber Services (Publications), Bureau of the Census, Washington, D.C. 20233, or any U.S. Department of Commerce district office. Postage stamps not acceptable; currency submitted at sender's risk. Remittances from foreign countries must be by international money order or by draft on a U.S. bank. 35 cents per copy.

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Table 1. Industry Statistics: 1977 and Earlier Years

(For explanation of terms, see appendix B)

Year	Oper- ating com- panies (no.)	All establishments ¹		All employees	Production, development, and exploration workers			Cost of supplies used, purchased	Production of primary products		Capital expendi- tures (million dollars)	
		With 20 employ- ees or more	Total (no.)		Payroll Number (1,000)	Number (1,000)	Hours (mil- lions)	Wages (million dollars)	Value added in mining (million dollars)	Value of machinery installed, etc. (million dollars)	Value of shipments (million dollars)	
INDUSTRY 1311, CRUDE PETROLEUM AND NATURAL GAS												
1977 ³	(NA)	8,524	964	133.2	2,617.2	60.9	119.3	1,028.4	37,801.8	13,256.0	40,417.2	2,782.9 17,705.3 10,640.6
1972 ³	5,631	7,605	820	116.6	1,376.0	51.9	101.8	498.9	14,422.3	4,222.7	15,690.8	3,235.6 20,968.5 2,954.2
1967 ³	5,482	8,796	1,034	126.4	1,049.1	66.2	130.0	440.3	10,965.0	3,308.3	11,731.7	3,043.7 17,126.1 2,541.6
1963.....	10,594	14,378	954	145.2	1,016.4	83.4	166.3	494.9	9,016.4	3,087.3	9,893.8	2,689.0 15,896.0 2,209.9
1958 ⁴	9,852	12,010	1,093	180.1	1,043.1	102.5	201.0	497.9	7,339.9	2,993.6	8,385.9	2,353.0 12,085.0 1,947.6
1954 ⁴	9,720	11,508	1,042	172.5	835.7	109.8	216.6	460.0	6,129.2	2,839.3	7,070.1	2,201.0 10,085.0 1,898.5

Note: For data prior to 1954, see 1963 Census of Mineral Industries, vol. I, table 1 of industry chapter.

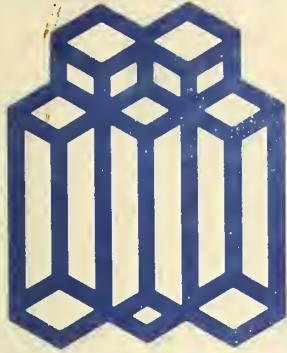
(NA) Not available.

¹Figures for 1972, 1967, 1963, and earlier years are not entirely comparable. For 1977 and 1972, and prior to 1963, each report (establishment) represented all operations in an entire State. For 1967 and 1963, companies filed separate establishment reports by districts for Louisiana, Texas, and New Mexico. For 1967, companies also filed separate establishment reports for offshore operations by State and for districts in California. In addition, in 1967, single unit establishments without paid employees were excluded from the census. For 1977 and 1972, companies filed separate establishment reports for each State or offshore area adjacent to a State where they operated during the year.

²Represents shipments of crude petroleum, field condensate, and drips plus crude petroleum produced and used in lease operations for power and heat or other purposes.

³In 1977, 1972, and 1967, data for companies without paid employees were excluded from the census. In 1963, there were 3,131 establishments without paid employees, which accounted for less than 3 percent of the industry's value added.

⁴Excludes figures for Alaska. For 1958, 17 establishments were reported; for 1954, 5 establishments.



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The table reproduced below contains revisions to figures previously published. Corrected figures are indicated by ^r.

Table 2. Industry Statistics by Geographic Areas: 1977 and 1972

(For explanation of terms, see appendix B)

Geographic area	1977										1972		
	All establishments		All employees		Production, development, and exploration workers			Cost of supplies used, purchased			Capital expenditures (million dollars)	Value added in mining All employees (1,000)	
	Total (number)	With 20 or more employees or (number)	Number (1,000)	Payroll (million dollars)	Hours (1,000)	Wages (million dollars)	Value added in mining (million dollars)	installed, etc. shipments (million dollars)	Value of shipments (million dollars)				
INDUSTRY 1311, CRUDE PETROLEUM AND NATURAL GAS													
United States.....	8,524	964	133.2	2,617.2	60.9	119.3	1,028.4	37,801.8	13,256.0	40,417.2	10,640.6	116.6	
Offshore United States ¹	^r 124	^r 37	^r 7.1	^r 160.9	^r 4.7	^r 10.0	^r 97.8	^r 6,745.1	^r 3,327.7	^r 6,642.7	^r 3,430.0	5.3	14,422.3 2,622.6
Michigan.....	104	14	1.1	20.6	.7	1.4	11.1	470.7	156.4	508.9	118.1	.6	36.4
North Dakota.....	80	4	.4	7.8	.3	.5	4.7	189.6	98.2	189.1	98.7	.3	20.0
Kansas.....	532	62	5.2	78.5	3.1	6.1	41.4	812.4	257.6	931.1	139.0	4.4	330.1
West Virginia.....	371	12	1.3	19.2	1.1	2.0	14.9	111.9	51.6	115.7	47.9	1.5	86.1
Alabama.....	35	3	.2	3.4	.1	.2	2.1	203.5	68.8	208.1	66.2	.1	29.9
Mississippi.....	154	18	1.1	19.7	.7	1.3	11.5	341.4	195.2	370.7	165.8	1.2	151.2
Arkansas.....	157	12	.9	12.1	.6	.9	7.4	229.6	55.3	243.9	41.0	.6	64.8
Louisiana.....	563	126	21.0	428.7	10.7	22.3	201.6	9,453.6	3,578.3	9,636.1	3,395.8	20.0	4,604.8
Offshore Louisiana ¹	43	21	5.6	124.5	3.9	8.3	77.5	5,782.5	2,219.5	5,618.6	2,383.5	4.0	2,100.2
Oklahoma.....	1,062	113	12.6	223.9	5.4	10.7	86.8	2,248.6	959.4	2,553.2	654.8	10.4	836.3
Texas.....	2,671	325	52.6	1,051.6	18.9	37.8	324.7	15,019.2	4,197.1	15,947.4	3,268.9	46.7	5,391.5
Offshore Texas ¹	35	6	.3	7.0	.2	.4	4.1	344.2	576.1	294.2	626.1	.3	41.6
Wyoming.....	176	20	2.3	46.8	1.4	2.9	26.3	1,024.6	461.1	1,156.4	329.4	2.1	411.0
Colorado.....	293	47	4.4	94.9	1.1	2.1	20.6	507.4	215.1	564.2	158.3	3.2	142.8
New Mexico.....	250	23	2.5	44.4	1.9	3.7	32.7	1,534.7	416.5	1,622.8	328.4	2.6	512.3
Utah.....	80	9	1.8	26.0	.4	.8	6.7	287.7	119.9	314.8	92.8	.4	90.7
California.....	360	72	13.2	273.7	6.6	12.9	121.1	2,710.3	994.3	3,079.1	625.5	10.3	953.0
Offshore California ¹	13	5	.6	11.5	.3	.5	4.7	230.4	212.9	291.1	152.2	.7	255.3
Alaska.....	36	11	2.3	92.5	1.0	2.1	34.8	968.9	800.5	1,209.5	559.8	.9	302.3
Offshore Alaska ¹	12	5	.4	14.0	.3	.6	9.8	313.5	218.7	396.3	135.8	.3	226.7
Other Areas.....	1,600	93	10.3	173.4	6.9	11.6	80.0	1,687.7	630.7	1,768.2	550.2	11.3	461.1
Offshore other areas.....	21	-	.2	3.9	.1	.2	1.7	74.5	100.5	1,425	132.4	(NA)	(NA)

- Represents zero. (NA) Not available.

¹Figures are included in totals under which they are subordinated, i.e., United States figures include repetitive figures for Offshore United States. Offshore is defined to be those areas seaward of the coastline. Coastline is the line of ordinary low water along that portion of coast which is in direct contact with open sea and line marking the seaward limit of inland waters.

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Alaska.....	36	11	2.3	92.5	1.0	2.1	34.8	968.9	800.5	1,209.5	559.8	.9	302.3
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²Includes Upper Cook Inlet even though these waters are legally inland.

Table 3. Products—Quantity and Value of Shipments by All Producers: 1977 and 1972

(Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of the products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation see appendix B, Value of shipments.)

1977 product code	Geographic area and products	Unit of measure	1977		1972	
			Product shipments		Product shipments	
			Quantity	Value (million dollars)	Quantity	Value (million dollars)
	CRUDE PETROLEUM AND NATURAL GAS					
	UNITED STATES (including offshore)					
1311- --	Total.....	.....	(X)	40,331.9	(X)	15,685.9
13111 03	Crude petroleum, including lease condensate.....	Mil. bbl.....	2,831.5	23,204.3	3,234.6	10,869.5
13115 32	Natural gas.....	Bil. cu. ft.....	17,611.6	14,710.6	21,011.0	4,139.1
13110 00	Crude petroleum and natural gas, n.s.k.....	.....	(X)	2,417.0	(X)	677.3
	MICHIGAN					
1311- --	Total.....	.....	(X)	505.2	(X)	41.9
13111 03	Crude petroleum, including lease condensate.....	Mil. bbl.....	30.2	324.1	9.3	29.0
13115 32	Natural gas.....	Bil. cu. ft.....	127.5	145.8	19.3	6.3
13110 00	Crude petroleum and natural gas, n.s.k.....	.....	(X)	35.3	(X)	6.6
	NORTH DAKOTA					
1311- --	Total.....	.....	(X)	189.0	(X)	(NA)
13111 03	Crude petroleum, including lease condensate.....	Mil. bbl.....	20.5	172.1	(NA)	(NA)
13115 32	Natural gas.....	Bil. cu. ft.....	22.8	15.2	(NA)	(NA)
13110 00	Crude petroleum and natural gas, n.s.k.....	.....	(X)	1.7	(X)	(NA)
	KANSAS					
1311- --	Total.....	.....	(X)	925.9	(X)	377.9
13111 03	Crude petroleum, including lease condensate.....	Mil. bbl.....	39.2	450.6	60.2	202.2
13115 32	Natural gas.....	Bil. cu. ft.....	745.0	357.3	899.7	140.5
13110 00	Crude petroleum and natural gas, n.s.k.....	.....	(X)	118.0	(X)	35.2
	ALABAMA					
1311- --	Total.....	.....	(X)	229.3	(X)	(NA)
13111 03	Crude petroleum, including lease condensate.....	Mil. bbl.....	14.7	161.3	(NA)	(NA)
13115 32	Natural gas.....	Bil. cu. ft.....	87.3	63.5	(NA)	(NA)
13110 00	Crude petroleum and natural gas, n.s.k.....	.....	(X)	4.5	(X)	(NA)
	MISSISSIPPI					
1311- --	Total.....	.....	(X)	360.6	(X)	195.1
13111 03	Crude petroleum, including lease condensate.....	Mil. bbl.....	36.8	252.6	54.2	171.2
13115 32	Natural gas.....	Bil. cu. ft.....	69.6	61.9	83.9	16.4
13110 00	Crude petroleum and natural gas, n.s.k.....	.....	(X)	46.1	(X)	7.5
	ARKANSAS					
1311- --	Total.....	.....	(X)	236.4	(X)	72.9
13111 03	Crude petroleum, including lease condensate.....	Mil. bbl.....	16.8	157.9	13.5	42.1
13115 32	Natural gas.....	Bil. cu. ft.....	87.3	63.5	111.5	20.8
13110 00	Crude petroleum and natural gas, n.s.k.....	.....	(X)	15.0	(X)	10.0
	LOUISIANA					
1311- --	Total.....	.....	(X)	9,589.2	(X)	4,919.1
13111 03	Crude petroleum, including lease condensate.....	Mil. bbl.....	546.0	4,573.5	865.0	3,077.0
13115 32	Natural gas.....	Bil. cu. ft.....	6,376.9	4,893.5	7,937.1	1,790.9
13110 00	Crude petroleum and natural gas, n.s.k.....	.....	(X)	122.2	(X)	51.2
	OKLAHOMA					
1311- --	Total.....	.....	(X)	2,497.5	(X)	943.8
13111 03	Crude petroleum, including lease condensate.....	Mil. bbl.....	122.3	1,150.9	174.9	592.8
13115 32	Natural gas.....	Bil. cu. ft.....	1,383.2	1,031.3	1,601.6	283.3
13110 00	Crude petroleum and natural gas, n.s.k.....	.....	(X)	315.3	(X)	67.7

See footnotes at end of table.

Table 3. Products—Quantity and Value of Shipments by All Producers: 1977 and 1972—Con.

(Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of the products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation see appendix B, Value of shipments)

1977 product code	Geographic area and products	Unit of measure	1977		1972			
			Product shipments		Product shipments			
			Quantity	Value (million dollars)	Quantity	Value (million dollars)		
CRUDE PETROLEUM AND NATURAL GAS--Con.								
TEXAS								
1311- --	Total.....	.....	(X)	15,881.4	(X)	5,856.2	
13111 03	Crude petroleum, including lease condensate.....	Mil. bbl.....	1,034.3	8,540.6	1,220.6	4,238.4		
13115 32	Natural gas.....	Bil. cu. ft.....	6,428.5	6,282.1	7,900.3	1,321.0		
13110 00	Crude petroleum and natural gas, n.s.k.....	.....	(X)	1,058.7	(X)	296.8	
WYOMING								
1311- --	Total.....	.....	(X)	1,138.5	(X)	471.8	
13111 03	Crude petroleum, including lease condensate.....	Mil. bbl.....	122.4	949.1	133.1	412.0		
13115 32	Natural gas.....	Bil. cu. ft.....	238.6	162.0	309.5	51.9		
13110 00	Crude petroleum and natural gas, n.s.k.....	.....	(X)	27.4	(X)	7.9	
COLORADO								
1311- --	Total.....	.....	(X)	555.8	(X)	162.8	
13111 03	Crude petroleum, including lease condensate.....	Mil. bbl.....	35.4	342.4	35.6	119.3		
13115 32	Natural gas.....	Bil. cu. ft.....	161.8	140.1	96.3	15.4		
13110 00	Crude petroleum and natural gas, n.s.k.....	.....	(X)	73.3	(X)	28.1	
NEW MEXICO								
1311- --	Total.....	.....	(X)	1,598.2	(X)	534.5	
13111 03	Crude petroleum, including lease condensate.....	Mil. bbl.....	81.3	736.2	99.4	339.3		
13115 32	Natural gas.....	Bil. cu. ft.....	1,130.2	839.1	1,051.7	184.9		
13110 00	Crude petroleum and natural gas, n.s.k.....	.....	(X)	22.9	(X)	10.3	
UTAH								
1311- --	Total.....	.....	(X)	312.5	(X)	(NA)	
13111 03	Crude petroleum, including lease condensate.....	Mil. bbl.....	28.6	251.5	(NA)	(NA)		
13115 32	Natural gas.....	Bil. cu. ft.....	43.9	43.7	(NA)	(NA)		
13110 00	Crude petroleum and natural gas, n.s.k.....	.....	(X)	17.3	(X)	(NA)	
CALIFORNIA								
1311- --	Total.....	.....	(X)	3,016.3	(X)	1,079.5	
13111 03	Crude petroleum, including lease condensate.....	Mil. bbl.....	321.4	2,537.2	(D)	899.0		
13115 32	Natural gas.....	Bil. cu. ft.....	291.3	336.2	(D)	154.1		
13110 00	Crude petroleum and natural gas, n.s.k.....	.....	(X)	142.9	(X)	26.4	
ALASKA								
1311- --	Total.....	.....	(X)	1,207.4	(X)	292.1	
13111 03	Crude petroleum, including lease condensate.....	Mil. bbl.....	206.5	1,139.9	(D)	273.2		
13115 32	Natural gas.....	Bil. cu. ft.....	153.8	64.5	(D)	18.9		
13110 00	Crude petroleum and natural gas, n.s.k.....	.....	(X)	3.0	(X)	-	

- Represents zero.

(D) Withheld to avoid disclosing figures for individual companies.

(X) Not applicable.

(NA) Not available.

Table 4. Selected Supplies and Fuels Used and Purchased Machinery Installed: 1977 and 1972

(Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation see appendix B, Cost of supplies used, purchased machinery installed, etc. and Specific supplies used and minerals prepared)

1977 code	Item	Unit of measure	1977		1972	
			Quantity	Delivered cost (million dollars)	Quantity	Delivered cost (million dollars)
	INDUSTRY 1311, CRUDE PETROLEUM AND NATURAL GAS					
	Selected supplies and fuels used and purchased machinery installed.....		(X)	6,207.4	(X)	2,007.5
131305	Selected supplies used and purchased machinery installed.....		(X)	5,920.9	(X)	1,941.0
131155	Gas purchased for gas lift and repressuring.....	Billion cu. ft.	26.1	21.4	115.4	20.8
353011	Purchased machinery installed.....		(X)	1,921.2	(X)	604.1
	Supplies used:					
331201	Steel mill shapes and forms.....		(X)	1,688.1	(X)	439.5
970099	All other supplies.....		(X)	2,128.0	(X)	770.5
976000	Undistributed supplies used and purchased machinery installed ¹		(X)	162.2	(X)	106.1
	Fuels used.....		(X)	286.5	(X)	66.5
	Purchased fuels:					
131159	Gas-natural, manufactured, and mixed.....	Billion cu. ft..	111.2	93.5	72.5	20.8
291111	Gasoline.....	Million gal....	87.8	42.2	41.9	13.8
	Fuel oil:					
291141	Distillate (light) grade numbers 1, 2, and 4 and light diesel fuel.....	1,000 barrels...	3,828.5	62.1	4,605.7	17.9
291151	Residual (heavy) grade numbers 5 and 6 and heavy diesel fuel.....	1,000 barrels...	2,879.1	33.1		
960019	Other fuels--liquefied petroleum gas, coal, coke, wood, and other.....		(X)	51.7	(X)	7.0
977000	Undistributed fuels ¹		(X)	3.9	(X)	6.8
	Fuels produced and used at this establishment for power and heat:					
131116	Crude petroleum, including lease condensate.....	Million bbl....	34.6	(X)	9.4	(X)
131159	Natural gas.....	Billion cu. ft..	873.5	(X)	460.9	(X)

(X) Not applicable.

¹Total cost of supplies or fuels of establishments that did not report detailed supplies or fuels data, including establishments that were not mailed a form.

APPENDIX A. Scope and Coverage

INTRODUCTION

The 1977 Census of Mineral Industries is the 18th census of mining establishments in the United States. For 1977, it was conducted jointly with the censuses of manufactures, construction industries, retail trade, wholesale trade, and service industries under authority of title 13 of the United States Code. Title 13 specifies that a census of mineral industries be conducted every 5 years to cover years ending in "2" and "7".

ESTABLISHMENT BASIS OF REPORTING

The census of mineral industries covers each mining establishment of firms with one paid employee or more operating in the United States. A firm operating more than one establishment is required to file a separate report for each location. Companies engaged in distinctly different lines of activity at one location are asked to submit separate reports if the company records permit such a separation and the activities are of significant size. This report includes figures for administrative offices, warehouses, storage facilities, and other auxiliary units servicing mining establishments.

For oil and gas field operations and contract services, reporting was somewhat different from the "establishment" reporting basis used for other types of mining. Every concern operating oil and gas wells, drilling wells for its own account or for others, or exploring for oil and gas was required to submit a separate report for each State or offshore area adjacent to each State in which it conducted such activities. Concerns which supplied contract services for mining establishments were required to submit one report covering all such activities in the United States.

USE OF ADMINISTRATIVE RECORDS

From a universe of approximately 29,000 mining establishments in the 1977 Census of Mineral Industries, approximately 11,000 small single-establishment companies were excused from filing reports. Selection of the small establishment nonmail cases was done on an industry-by-industry basis. A variable cutoff was used to determine those establishments for which administrative records were to be used in place of a census report. The cutoffs were selected so that the administrative record cases would account for approximately 3 percent of the value of shipments for the industry. These cutoffs were then adjusted so that all single-establishment companies with less than 5 employees were excluded from the mail canvass, while all establishments with more than 10 employees were included. For the crushed stone and construction sand and gravel industries, where most establishments in the 5 to 20 employee size range were included in the mail canvass, an abbreviated census form was used.

For these nonmail establishments, estimates were made from payrolls and receipts data obtained from the administrative files of the Social Security Administration (SSA) and the Internal Revenue Service (IRS). The administrative records data were obtained under special arrangements which safeguarded the confidentiality of both tax and census records. Estimates for data other than payrolls and sales for these small establishments were developed from industry averages. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material "not specified by kind" categories.

In the 1977 Census of Mineral Industries, as in the 1972 and 1967 censuses data for single-unit firms without paid employees were excluded. This exclusion has had only a slight effect on industry aggregates for most industries. Data for firms without employees were included in the 1963, 1958, and 1954 censuses if they reported more than \$500 in (1) value of shipments and receipts, (2) cost of supplies and purchased machinery, or (3) capital expenditures.

The industry classification codes included in the administrative records files were used for those establishments excused from filing census forms. Generally, these codes were assigned on the basis of brief descriptions of the general activity of the establishment. Where the description is incomplete, or where there are relatively fine lines of demarcation among industries or between mining and nonmining activities, the code assigned to an establishment could differ from that which would have been assigned on the basis of more complete product or activity information. Therefore, the total establishment count should be viewed as an approximation rather than as a precise measurement. The counts for establishments with 20 or more employees are far more reliable.

VALUE OF SHIPMENTS FOR THE INDUSTRY COMPARED TO VALUE OF PRODUCT SHIPMENTS

In the census of mineral industries publications, value of shipments data are published for industries and products. Value of shipments figures shown in tables 1 and 2 represent the total value of shipments of all establishments classified in the particular industry. This figure includes the shipments of the products that are classified in the industry (primary to the industry), products classified in other industries (secondary to this industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Product shipments shown in table 3 represent the total value of shipments of products classified as primary to this industry that were shipped by all mining establishments regardless of their industry classification.

OTHER REPORTS IN THE CENSUS

More detailed figures for this industry will appear in the final census reports. Final reports will also include a comprehensive discussion of such concepts as "industry," "establishments," and "secondary production," as well as the various statistical items such as "employment" and "value added." Similar preliminary and final reports are being issued for other

industries. Preliminary summary reports are also being issued showing U.S. totals for industry and industry groups, and for each State. The final industry and area reports will be published during 1979.

Order forms describing these reports and their prices may be obtained from any U.S. Department of Commerce District Office or from the Subscriber Services Section (Publications), U.S. Bureau of the Census, Washington, D.C. 20233.

APPENDIX B. Explanation of Terms

(For a more complete discussion of these terms and the method of compiling the Census of Mineral Industries, see the Introduction to the 1972 Census of Mineral Industries, Subject, Industries, and Area Statistics)

All employees—This item includes all full-time and part-time employees on the payrolls of operating mineral establishments for any part of the pay period ended nearest the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacation during these pay periods. Officers of the corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employee" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average of those for midmonth payroll periods of March, May, August, and November.

Payroll—This item includes all forms of compensation such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of these establishments, if a corporation; it excludes payments to the proprietor or partners, if an unincorporated concern. Respondents were told that in reporting they could follow the definition of payroll used for calculating the Federal withholding tax.

Production, development, and exploration worker hours—This item represents all hours that production, development, and exploration workers worked both on active days during which there was production or development work, and on inactive days when only watchmen, inspectors, repairmen, and other maintenance persons were on duty. It includes all hours worked or paid for at the mining operations, except hours paid for vacations, holidays, or sick leave, when the employee was not at the establishment. Included are actual overtime hours not straight-time equivalent hours. Hours of working proprietors or partners are excluded.

Cost of supplies used, purchased machinery installed, etc.—This cost includes supplies and purchased machinery installed, fuels and electric energy used, and contract work done by others for each establishment. It includes charges to both the current and capital accounts. It also includes the cost of items used during 1977 whether they were purchased, withdrawn from inventories, or received from other establishments of the company. For selected supplies and fuels and for electric energy, both quantity and cost data were requested. The cost data refer to direct charges actually paid or payable (after discounts) for items used during the year. Freight charges and other direct charges incurred by the establishment in acquiring the item are included. Where the company's records did not show actual amounts used, they were asked to approximate use by adding purchases (or receipts) during the year to opening inventory and subtracting closing inventory.

Separate figures were obtained for (a) selected supplies, minerals received for preparation, and purchased machinery installed; (b) electric energy purchased; (c) purchased fuels used for heat, power, or the generation of electricity; (d) contract work done by others; and (e) products bought and resold in the same condition. Supplies and equipment used in mine development, plant expansion, and capitalized repairs, which are chargeable to fixed assets accounts, were included as were supplies furnished without charge to contractors for use at the mining operation and supplies sold to employees for use at the establishment. No data on such costs as advertising, insurance, telephone, and research and consulting services of other establishments; or on overhead costs, such as depreciation charges, rent, interest, and royalties, were included in this item.

Specific supplies used and minerals prepared—In addition to the total cost of supplies, etc., and purchased machinery installed which every establishment was required to report, information was also collected on the consumption of major supplies used in mining. These inquiries were restricted to supplies which were important parts of the cost of production, exploration, and development of a particular industry and for which cost information was available from the firms' records. Information on the specific supplies consumed is shown in table 4.

On report forms for almost all mineral industries except the contract services industries, a uniform inquiry was included on minerals prepared at the reported establishments. Figures were obtained on minerals prepared from three sources: (1) Crude minerals mined at the establishment (quantity), (2) crude minerals received from other establishments of the company or purchased from others (quantity and cost), and (3) crude minerals received for preparation on a custom or toll basis (quantity and estimated value).

Establishments consuming less than a specified amount (usually \$10,000) were not requested to report separately the cost of a supply. Also, the cost of supplies for small establishments for which administrative records were used were imputed as "not specified by kind." (See appendix A for the importance of administrative records in the industry.)

Capital expenditures—This item covers expenditures made during the year for development and exploration of mineral properties, for new construction, and for purchased machinery chargeable to fixed assets accounts of the mineral establishment. They are the type for which depreciation, depletion, or Office of Minerals Exploration accounts are ordinarily maintained. Capital expenditures during 1977 were to be determined as "additions completed during the year plus construction in progress at the end of the year minus construction in progress at the beginning of the year." Reported capital expenditures were to include work done on contract as well as by the mine forces. Expenditures for machinery and equipment were to include

those made for replacement purposes, as well as those for additions to capacity. Excluded from these expenditures were costs of maintenance and repairs charged as current operating expense and expenditures for land and mineral rights.

Wherever applicable, separate figures were provided for expenditures for (a) development and exploration of mineral property, (b) construction of preparation plants and other construction, (c) new machinery and equipment, (d) used plant and (e) used equipment acquired from others.

Value added in mining—This measure of mining activity is derived by subtracting the cost of supplies used, minerals received for preparation, purchased machinery installed, purchased fuel, purchased electricity, and contract work from the sum of the value of shipments (mining products plus receipts for services rendered) and total capital expenditures. The result of the calculation is then adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further processing).

This statistics avoids the duplication in value of shipments which results from the use of products of some establishments as supplies, energy sources, or materials by others. Moreover, it provides a measure of value added not only in mineral production but also in the development of mineral properties. For these reasons, it is considered to be the best value measure for comparing the relative economic importance of mining among industries and geographic areas.

Value of shipments—This item includes the values, f.o.b. mine, well, or plant (exclusive of freight and taxes), or all primary and secondary products shipped, as well as all miscellaneous receipts such as receipts for contract work performed for others, installation and repair, sale of scrap, and sale of products bought and resold without further processing. Included are all items produced by the establishments and sold, transferred to other plants of the same company, or shipped on consignment.

In the case of multiunit companies, the firm was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value; i.e., including not only the direct costs of production but also a reasonable proportion of "all other costs" (including company overhead) and profit.

For industry and industry group totals, some duplication is introduced by the inclusion of materials transferred from one

establishment to another for mineral preparation. Wherever value of shipments is shown without further specification, it represents gross shipments.

Shipments of individual products—In the 1977 Census of Mineral Industries, information was collected on the output of about 200 individual mineral product items. In general, the figures of the 1977 and 1972 minerals censuses were confined to separate totals for each crude and each prepared mineral. Where significant, separate shipments figures were also obtained for crude minerals going to preparation plants and those going to consumers.

Figures were collected on both quantity and value of shipments. Shipments include commercial shipments and transfers of products to other operations of the same company. For products which are used to a significant extent within the same establishment for power or heat, and for minerals mined and prepared in the same establishment, total production or separate data on production for such uses were collected. Typically, production was also collected for products for which there are usually significant differences between total production and total shipments as a result of stock changes.

For service industries, the amount received or due for services performed during 1977 was collected as a measure of output. For mine operators who also perform services, the amount received for such services was added to the total value of products shipped to determine total value of shipments and receipts for each establishment.

Table 3 of the individual industry reports provides the national and State total shipments from all industries for each of the products primary to the industry covered in the report.

Shipments and production—Shipments figures include all products physically shipped from the establishment during 1977, including material withdrawn from stock-piles and products shipped on consignment, whether or not sold in 1977. Prepared material or concentrates include preparation from ores mined at the same establishment, purchased, received from other operations of the same company, or received for milling on a custom or toll basis. For products transferred to other establishments of the same company or prepared on a custom basis, the company was requested to include, in addition to direct costs of production, a reasonable proportion of company overhead and profits.

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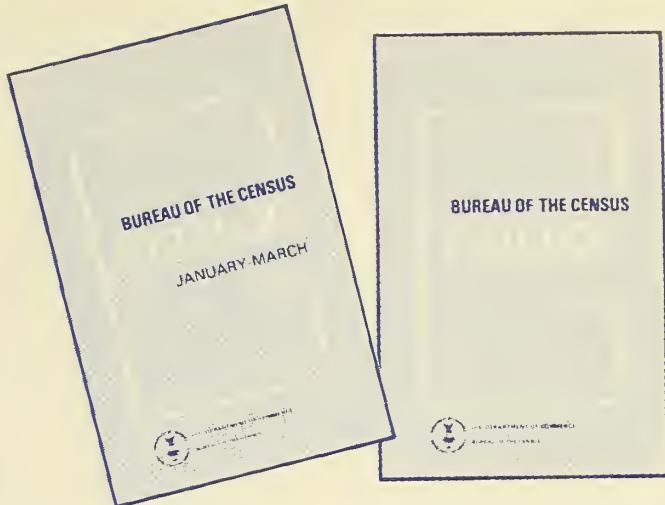
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